

Oil and Gas Study



March 22, 2012



Overview of Presentation



1. Limitations
2. Findings
3. Areas for further study
4. Recommendations
5. Questions

Study Limitations



- Lack of detailed information on extent and richness of shale gas resource in NC
- This carries over to assessment of environmental and economic impacts
- Potential for unknown impacts based on local characteristics
- Timeframe prevented us from considering ongoing work from EPA and others
- No comprehensive study of long-term health effects
- Awaiting information on consumer protection

Overview of Findings



- Regulations and protections must be in place before any hydraulic fracturing occurs
- NC lacks regulatory standards necessary to manage the impacts of gas production
- For example, NC has no mechanism to regulate water withdrawals for hydraulic fracturing and no standards for disposal of production wastes
- The industry can also have significant impacts on local communities and infrastructure
- Economic benefits to NC are unclear in part because of limited information on the resource
- More research is needed on groundwater, the shale gas resource, and other topics

Areas for Further Study



- Further research on the extent and richness of the shale gas resource in North Carolina
- Groundwater, particularly the separation between shale resources and groundwater supplies in NC
- Evaluation of the existing state air toxics program and its ability to protect landowners who lease to oil and gas operators
- Appropriate level of severance tax and use of those revenues
- Liability of gas producers for groundwater contamination

Baseline Data Collection and Water Management



1. Collect pre-drilling baseline data on resource quality

- Industry: groundwater quality
- DENR: surface water quality
- DENR: air quality
 - ✦ Further research on state air toxics program

2. Water management

- Require oil and gas operators to have a Water Management Plan
- Limit water withdrawals to 20% of the 7Q10

Well Construction and Siting



3. Enhance existing oil and gas well construction standards to address the additional pressures of hydraulic fracturing and horizontal drilling
4. Develop setback requirements and identify areas where oil and gas activities should be prohibited.
 - Existing setbacks for impervious surfaces
 - ✦ Water supply watersheds, wetlands, floodplains, stormwater programs, high quality waters, etc.
 - Protect neighbors
 - ✦ Property boundaries, safety hazards, noise, etc.

State Stormwater Management Program



5. Develop a state stormwater regulatory program for oil and gas drilling sites
 - Potential for disturbing large amounts of land
 - Oil and gas activities have a federal exemption from NPDES stormwater requirements
 - Requirements for stormwater permitting, inspections and compliance activities

Waste Management Standards



6. Develop specific standards for management of oil and gas wastes
 - Develop a regulatory program to address the unique characteristics of oil and gas solid wastes during transportation, on-site storage and final disposal
 - Prohibit land application of oil and gas solid waste and wastewater
 - Maintain the state's prohibition on underground injection of wastewater due to NC's unsuitable geology and seismic risks
 - For wastewater, encourage 1) recycling and reuse of hydraulic fracturing fluids, 2) pretreatment, and 3) centralized waste treatment facilities

Hydraulic Fracturing Constituents



7. Require:

- Full disclosure of hydraulic fracturing chemicals and constituents to regulatory agencies, and
- Public disclosure of hydraulic fracturing chemicals, except for trade secrets, through FracFocus or state agency website

8. Prohibit the use of diesel fuel in hydraulic fracturing fluids

Data Management



9. Develop a robust data management system to:
- Include GIS capabilities
 - Store baseline water and air quality data
 - Track production for royalties / severance tax
 - Facilitate public disclosure of data
 - Provide electronic permitting to the industry
 - Enable effective permitting, inspection and enforcement

Emergency Response



- 10. Ensure state agencies, local first responders and industry are prepared to respond to a well blowout, chemical spill or other emergency
 - Oil and gas operators should be required to develop emergency response plans, including
 - ✦ Will have qualified person on site at all times
 - ✦ 911 addressing of well locations
 - Identify funding to support local governments that will need to train local emergency services providers
 - Encourage the Department of Labor to review its readiness to inspect drilling sites and enforce OSHA standards for oil and gas

Modern Oil & Gas Regulatory Program



11. Develop a modern oil and gas regulatory program while preventing physical and economic waste of oil and gas resources
 - Authorize DENR to establish complete regulator program, including:
 - ✦ Well pad density requirements
 - ✦ On-site regulatory agency inspections during cementing
 - ✦ Funding for rigorous oversight and regular inspections
 - ✦ Broaden authority for use of performance bonds
 - ✦ State water quality standards for hydraulic fracturing constituents

Environmental Permitting in DENR



12. Keep environmental permitting in DENR where it will benefit from the expertise of state geological staff and the ability to coordinate air, land and water quality permitting
13. Develop a coordinated permitting process

Distribution of Revenues



- 14. Address the distribution of revenues from oil and gas excise taxes and fees
 - Severance tax and program fee revenue should fund:
 - ✦ The administration of the oil and gas program
 - ✦ Conservation initiatives
 - ✦ Reclamation and remediation
 - ✦ Local government infrastructure
 - Conduct further study on the appropriate severance tax rate for NC
 - Assess an annual fee to perform inspections of oil and gas sites

Local Governments



15. Identify a source of funding for repair of roads damaged by truck traffic and heavy equipment
 - Ask NCDOT to study this issue
16. Clarify the extent of local government regulatory authority over oil and gas activities
 - Models exist in other states for sharing authority between state and local government
17. Complete additional research on impacts to local governments and local infrastructure
 - Ask the School of Government, the League of Municipalities, the Association of County Commissioners, or others for research assistance

Economic Impacts



18. Complete additional research on potential economic impacts

- In draft report, economic impacts section does not consider site preparation, leasing of land, hydraulic fracturing, or extraction, production or transmission of gas
- Data quality issues prevented further study
- Follow-on analysis with better data is recommended

Address Liability



19. Address the natural gas industry's liability for environmental contamination caused by exploration and development, particularly for groundwater contamination
 - We recommend that the General Assembly study this issue further

Public Participation



20. Provide additional public participation opportunities

- Public comments received through April 1 will be used in the development of the final report
- Use technical advisory groups to develop specific requirements for an oil and gas program

Public Input



- Public Meetings (March 20 in Sanford and March 27 in Chapel Hill)
- Written Comments Accepted through April 1, 2012
 - Email to: Shale_Gas_Comments@ncdenr.gov
 - Mail to: NCDENR, attn: Trina Ozer
1601 MSC
Raleigh, NC 27699
- Get updates
 - Send an email to: DENR_Shale_Gas@ncdenr.gov
 - Visit <http://portal.ncdenr.org/web/guest/shale-gas>
- Final report due to General Assembly on May 1, 2012



Questions?